2000-FO-CMBT-1969D **NOVEMBER 2000**

SYSTEM ASSESSMENT
FOR THE
CLOSE COMBAT TACTICAL TRAINER
(CCTT)

UNITED STATES ARMY
TEST AND EVALUATION COMMAND
4501 FORD AVENUE
ALEXANDRIA, VA 22302-1458

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SYSTEM ASSESSMENT
OF THE
CLOSE COMBAT TACTICAL TRAINER

Prepared by:
The ATEC System Team

CPT Lawrence Gill
US Army AEC
AST Chair

Mr. Robert Silva
US Army OTC
Test Officer

Mrs. Annamaria Swiger
US Army AEC
RAM Analyst

Mr. Frederick Schiffner
US Army OTC
Test ORSA

Mr. Don Parks
HRED
MANPRINT Analyst

UNITED STATES ARMY
TEST AND EVALUATION COMMAND
4501 FORD AVENUE
ALEXANDRIA, VIRGINIA 22302-1458

Approved by:

JOHN J. MARCELLO
Major General, USA
Commanding

AST COORDINATION SHEET

FOR

CLOSE COMBAT TACTICAL TRAINER

	Signature		**Date**
CPT Lawrence Gill (AST Chair)		(Concur/Non-Concur)	
Mrs. Annamaria Swiger (AST Member)		(Concur/Non-Concur)	
Mr. Robert Silva (AST Member)		(Concur/Non-Concur)	
Mr. Don Parks (AST Member)		(Concur/Non-Concur)	
Sharon Meirose (AST Member)		(Concur/Non-Concur)	

SYSTEM ASSESSMENT

CLOSE COMBAT TACTICAL TRAINER

November 2000

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ABSTRACT

This System Assessment (SA) contains the evaluation of the Close Combat Tactical Trainer (CCTT) operational suitability as input to support a Congressional funding decision. The CCTT is an acquisition category (ACAT) II program with Director, Operational Test and Evaluation (DOTE) oversight. The CCTT is a real-time, interactive training system used to train heavy forces for ground combat. The CCTT is a simulation system wherein various simulated elements replicating actual combat vehicles, weapon systems, and command and control elements are networked for fully interactive collective task training on computer-generated terrain. Because the vehicle simulators emulate the capabilities and performance of the actual combat systems, the simulation system allows for the conduct of tactical operations in a totally simulated environment.

Follow-on Operational Test and Evaluation (FOTE) 1b re-examines the suitability issues not met during the Initial Operational Test and Evaluation (IOTE). These suitability issues included: 1) Simulator Availability of the subsystems during a normal training day and 2) the percentage of exercises executed without a system abort. The results from FOTE Ib showed that upgrades to the system increased simulator availability, ranging from 60% for the dismounted infantry modules to 250% for the M1 tank modules. Overall simulator availability during the 9-hour training day exceeded 98%. During FOTE Ib, units were able to complete 95% of all platoon-level exercises and 97% of all company-level exercises attempted as a direct result of the decreases in system aborts and increased reliability of system software improvements. An assessment was also conducted to determine if the CCTT is logistically supportable in the field. The assessment shows that the CCTT system has now demonstrated the ability to be supported in the field. FOTE 1b clearly demonstrated the CCTT to be a reliable, available and maintainable system that ably supports the Army's training mission.

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CONTENTS

TABLES

FIGURE

CHAPTER 1
INTRODUCTION

1.1 PURPOSE OF THE ASSESSMENT. This System Assessment (SA) provides the Follow On Test and Evaluation (FOTE) 1b results on collective training in a simulated environment leading to the operational assessment of the Close Combat Tactical Trainer (CCTT). This evaluation by the US Army Test and Evaluation Command (ATEC) will support a Congressional funding decision. The CCTT is an acquisition category (ACAT) II program with Director, Operational Test and Evaluation (DOTE) oversight. The purpose of the FOTE 1b for the CCTT is to re-examine the suitability issue including criteria not met during the Initial Operational Test and Evaluation (IOTE).

1.2 SCOPE OF ASSESSMENT .

1.2.1 The focus of FOTE 1b was Reliability, Availability, and Maintainability (RAM) of the CCTT system. The FOTE 1b required the interaction between necessary unit command and control, combat support, and combat service support personnel, along with Semi-Automated Forces (SAF) and After Action Review (AAR) workstation operators. The system assessment compares test results against specified requirements and IOTE results to identify improvements in or detriments to suitability.

1.2.2 The US Army Operational Test Command (OTC), Close Combat Test Directorate (CCTD) conducted FOTE 1b in the CCTT fixed-site facility at Fort Benning, Georgia, from 24 July to 18 August 2000. The US Army Evaluation Center (AEC), Close Combat Evaluation Directorate (CCED) assessed the CCTT system and developed this SA report. The FOTE 1b used US Army Forces Command (FORSCOM) units based at Fort Benning as test units. The test units conducted tactical mission training in the CCTT during exercises at three levels - platoon, company, and task force.

1.2.3 To train tactical missions using CCTT during the FOTE 1b, company elements were configured as platoon and company teams. At the platoon level, no more than five simultaneous exercises were conducted at the CCTT site. A company-level training exercise consisted of three platoon exercises conducted simultaneously. Additionally, Battalion/Task Force exercises were conducted using simulated forces (SAFOR) to create additional friendly vehicles (BLUFOR) units over and above the 3-company team, as well as, for creating opposing forces (OPFOR).

1.2.4 Data were collected on the system modules and workstations. Contractor Logistics Support (CLS) followed the prescribed maintenance concept. Only the CLS personnel, and spare parts as prescribed in the support contract, were used during the test; augmentations for test purposes were not permitted.

1.3. EVENT CONDUCTED.

1.3.1 Company teams consisting of 2 Mechanized Infantry and 2 Armor comprised the test units that trained in the CCTT during FOTE 1b. The units selected training exercises in conjunction with the test organization that met both test and training requirements. The CLS personnel

operated and maintained the system. OTC collected FOTE 1b site utilization and Reliability, Availability and Maintainability (RAM) data. Army Research Lab (ARL) collected Manpower and Personnel Integration (MANPRINT) survey data Table 1-1 presents the number and type of exercises conducted during FOTE 1b.

TABLE 1-1. EXERCISES CONDUCTED DURING FOTE 1B

Type	Number	Total
Platoon		**35**
Armor	**23**	
Mech	**12**	
Company		**42**
Armor Pure	**6**	
Mech Pure	**10**	
Armor Heavy	**12**	
Mech Heavy	**12**	
Early termination - Co Exercises	**2**	
BN/Task Force		**7**
Dismounted Infantry Orientation		**4**
Familiarization exercise (FAMEX)		**16**
Workstation orientation		**7**
TOTAL		**111**

1.3.2 Test units, using a mixture of tactical scenarios on the P2 terrain database, exercised the full complement of CCTT capabilities. The test units specified the missions, tasks, supporting and opposing forces, tactical contexts, and simulation requirements to support each training exercise. Units entered FOTE 1b fully prepared to conduct the necessary tactical mission training to support their training plan. Player personnel selected Structured Training For Units (STRUCCTT) to meet their training objectives or to develop their own training exercises in coordination with the CCTT site personnel. The four-week test was broken into two separate training periods. The first day of each 2-week period was devoted to familiarization exercises for the manned modules. Additionally, Dismounted Infantry (DI) and workstation orientations were provided to the player personnel.

1.4. SYSTEM DESCRIPTION.

1.4.1 The CCTT is a real-time, interactive training system used to train heavy forces for ground combat. The CCTT is a simulation system wherein various simulated elements replicating actual combat vehicles, weapon systems, and command and control elements are networked for fully interactive collective task training on computer-generated terrain. Because the vehicle simulators emulate the capabilities and performance of the actual combat systems, the simulation system allows for the conduct of tactical operations in a totally simulated environment.

1.4.2 The CCTT system consists of training hardware, software, CLS, and training support packages. The training hardware consists of a network of combat vehicles simulators and workstation emulators that function as the vehicles and supporting elements of a tactical combat organization, along with supporting contractor-operated control stations. The manned simulators are connected to workstations and other hardware by cables that are securely tied off and hidden. The training software consists of three main components: application software (software version 7.04); operating system and run-time environment software; and diagnostic software. The CLS element consists of maintenance technicians, operations personnel, and operators for the mission control workstations such as the SAF stations, AAR stations, maintenance console (MC), and master control console (MCC). The training support packages include Education Through Computer Assisted Training Technology (EDUCATT) to facilitate soldier orientation training on the CCTT system and STRUCCTT exercises to support tactical mission training.

1.4.3 The site configuration at Fort Benning supported the conduct of FOTE 1b with 14 M1A1s (Tank simulators), 14 M2/M3s (Bradley Fighting Vehicles-Mech Inf/Cav), 1 FIST-V (Fire Support Team Vehicle), 1 M113 (Personnel Carrier), 1 High Mobility Multipurpose Wheeled Vehicle (HMMWV), 2 Dismounted Infantry Modules (DIMs), and AAR stations. A local area network (LAN) connected the simulators and workstations. The system supported up to two simultaneous company-level or five simultaneous platoon-level training exercises.

1.5. BACKGROUND.

1.5.1 The Training Device Needs Statement (TDNS), dated 16 July 1987, and the Training Device Requirement (TDR), updated in January 1998 and July 2000, document the need for CCTT. An extensive test program for CCTT has been ongoing since 1990. Developmental testing began in Orlando, Florida, in October 1995 and continued at Fort Hood, Texas and other places throughout 1997. The Verification, Validation and Accreditation (VV&A) testing began in June 1996.

1.5.2 ATEC conducted a Limited User Test (LUT) of the CCTT from 21 April to 19 June 1997, at the CCTT facility at Fort Hood, Texas. The final LUT report states: "CCTT is making satisfactory progress towards being effective and suitable," the report identified areas in which the Program Manager (PM) could focus future developmental efforts. Areas identified for improvement included the use and effectiveness of indirect fires, the user friendliness of the DIM, the length of maintenance delays during three or more simultaneous exercises, the significant number of training interruptions, the maturity of the software, the usability of the Data Analysis and Reporting (DAR) system reports from the AAR station, and the limited number of maintenance and logistical personnel.

1.5.3 Based on the results of the LUT, the Army's System Acquisition Review Council (ASARC) approved a Low Rate Initial Production (LRIP) decision to buy long-lead items for CCTT fielding to the Army.

1.5.4 ATEC conducted an IOTE of the CCTT from 2 March to 15 May 1998, at the CCTT facility at Fort Hood, Texas. The CCTT was assessed to be effective, but not suitable. The frequency of training interruptions degraded the overall quality of training, increased the

maintenance workload and logistics delays, and increased the frequency in which degraded or inoperable manned modules were used in training exercises. The largest percentage of training interruptions was attributed to Image Generator (IG) problems and simulated vehicle flips. Because the system was stressed more during the IOTE than during the LUT, many of the same failure modes noted during the LUT recurred in greater numbers during the IOTE. There were nearly 600 IG failures, with an average of one IG time out per every IOTE exercise. The mean training time lost per interruption was 15 minutes.

1.5.5 Based on the results of the IOTE, the ASARC Milestone III decision on 2 November 1998 specified that the full-rate production of CCTT would be delayed pending an assessment of the new IG model 4530. The decision further directed that ATEC would assess the new IG model 4530 at the earliest opportunity. In addition, ASARC added one additional test event block to the seven specified in the Test and Evaluation Master Plan (TEMP).

1.5.6 The PM had the equipment and LRIP approval to field the Fort Knox fixed-site CCTT facility. The PM successfully conducted a Production Verification Test (PVT) at the Fort Knox facility in February 1999. ATEC, in compliance with the ASARC III decision to assess the new model IG at the first opportunity, conducted the FOTE 1a (new event block) from 22 March to 1 April 1999, at Fort Knox. The test results demonstrated that the PM's projected improvement of 50 percent (in other words, a projected 50-percent decrease in the number of training interruptions attributable to the IG) was met with greater than 80-percent confidence. Also, software changes to the vehicles' dynamics model significantly improved the realism in how vehicles interact with the terrain database and reduced the number of vehicle flips. ATEC recommended that the PM be authorized to proceed with full-rate production of the CCTT with the new IG 4530 model.

1.5.7 The PM's office asked for an FOTE to demonstrate that the fixes implemented in the system were effective and the system could be rated as suitable, versus the less than suitable results from the IOTE. On 31 March 2000, Directorate of Training (DOT) and ATEC announced a decision to conduct FOTE 1b.

1.6. ASSESSMENT LIMITATIONS AND IMPACTS. No M1A2 modules were available at the Fort Benning facility for use during FOTE 1b; however, the M1A1 and the M1A2 modules are highly similar in design, failure rates, and failure modes experienced during the IOTE.

CHAPTER 2
CONCLUSIONS

2.1 OPERATIONAL EFFECTIVENESS. Operational Effectiveness (Critical Operational Issues (COIs) 1 and 3) was met during the IOTE and not addressed in this SA.

2.2 OPERATIONAL SUITABILITY.

2.2.1 Critical Operational Issue 2, Operational Suitability – Reliability, Availability, and Maintainability (RAM). Can the CCTT system support the anticipated operational training mission? FOTE 1b system assessment indicates that the CCTT system is operationally suitable; CCTT proved to be a reliable, available and maintainable system that more than adequately supports the training mission. See Table 2-1 for the FOTE 1b CCTT suitability findings.

2.2.1 Criterion 2-1. Criterion 2-1 was met during the IOTE and not addressed in this SA.

2.2.2 Criterion 2-2. The system will demonstrate no less than 90% availability for each major subsystem during the normal training. Criterion 2-2 was met. During the FOTE 1b, CCTT proved to be a reliable, available and maintainable system that more than adequately supports the training mission. The simulator training availability requirement was met for each of the major subsystems. Simulator availability during the training day exceeded 98%. Only one instance occurred when two or more same type manned modules were down simultaneously for 30 minutes. The mean turn around time for manned modules was 0.54 hours, less than the mean time to repair requirement of 1.11 hour (threshold), and only three incidents exceeded two hours of down time. The M1A1 and DI simulators met the 90% probability requirement that no more than 10 percent of any one type of manned module at a given site can be simultaneously down for more than 30 minutes during a normal training day with an 88% confidence level, while the M2/M3 produced a 61% confidence for the 90% probability requirement.

2.2.3 Criterion 2-3. The system will demonstrate that the system complete 90% of the platoon and 90% of the company and/or company team tactical training exercises without a system abort. Criterion 2-3 was met. Ninety-five percent of platoon and 97% of company exercises were completed without a system abort. The mean time between essential function failure (MTBEFF) demonstrates improvement over IOTE results; 250%-M1, 150%-M2/M3, and 60%-DI. Decreases in frequency of failure mode demonstrated that fixes to correct problems had been made. Only one new failure mode was identified during FOTE 1b. Simulator reliability has improved nearly 200% since IOTE, and no longer severely interrupts training exercises. Soldiers indicated that interruptions to training exercises did not impact training objectives.

2.3 OPERATIONAL SURVIVABILITY. Not evaluated during FOTE 1b.

2.4 CONCLUSION. The CCTT fixed site system demonstrated a more than adequate level of suitability during FOTE 1b. (NOTE: The CCTT system used for FOTE 1b was the production full rate system while the system used for IOTE was a Low Rate Initial Production (LRIP) system.) The system met all RAM criteria designated for evaluation. The system has matured to a suitable level.

TABLE 2-1. FOTE 1B SUITABILITY FINDINGS

Criteria	FOTE 1b Results
Criterion 2-2. The system will demonstrate no less than 90% availability for each major subsystem during the normal training.	
MOE 2-2-1. Simulator Training Availability (As).	Availability M1A1 98.6% M2/M3 98.6% DI 99.8%
MOE 2-2-2. Mean Turnaround Time (MTT)	M1A1 0.67 hrs M2/M3 0.46 hrs DI 0.24 hrs All Modules 0.54 hrs
MOE 2-2-3. Probability of more than 1 manned module will be down simultaneously for more than 30 minutes for each type of manned module during a normal training day. (Based on a 9-hour day)	Conf Level M1A1 0.88 M2/M3 0.61 DI 0.88
Criterion 2-3. The system will demonstrate that the system complete 90 percent of the platoon and 90 percent of the company and/or company team tactical training exercises without a system abort.	
MOE 2-3-1. The system will demonstrate that the system complete 90 percent of the platoon and 90 percent of the company and/or company team tactical training exercises without a system abort.	Platoon 97.1% Company 95%
MOP 2-3-1-1: Mean Time Between Essential Function Failure (MTBEFF)	M1A2 100.1hrs M2/M3 82.8 hrs DI 152.4 hrs
MOP 2-3-1-2 Change in Frequency of Failure Modes	8 failure types fixed since IOTE 8 failure types reduced since IOTE 1 new failure mode identified-FOTE
MOP 2-3-1-3. Frequency Number of Times of Interruptions	Platoon Avg 0.6 times / exercise Company Avg 2.25 times / exercise
MOP 2-3-1-4 Soldier Feedback on Interruptions	Soldiers indicate interruptions did not impact training

CHAPTER 3
FINDINGS AND ANALYSIS

3.0 CCTT SYSTEM ASSESSMENT. The FOTE 1b re-examines the suitability issue not met during the IOTE. Figure 3-1 provides the evaluation dendritic used for the FOTE 1b.

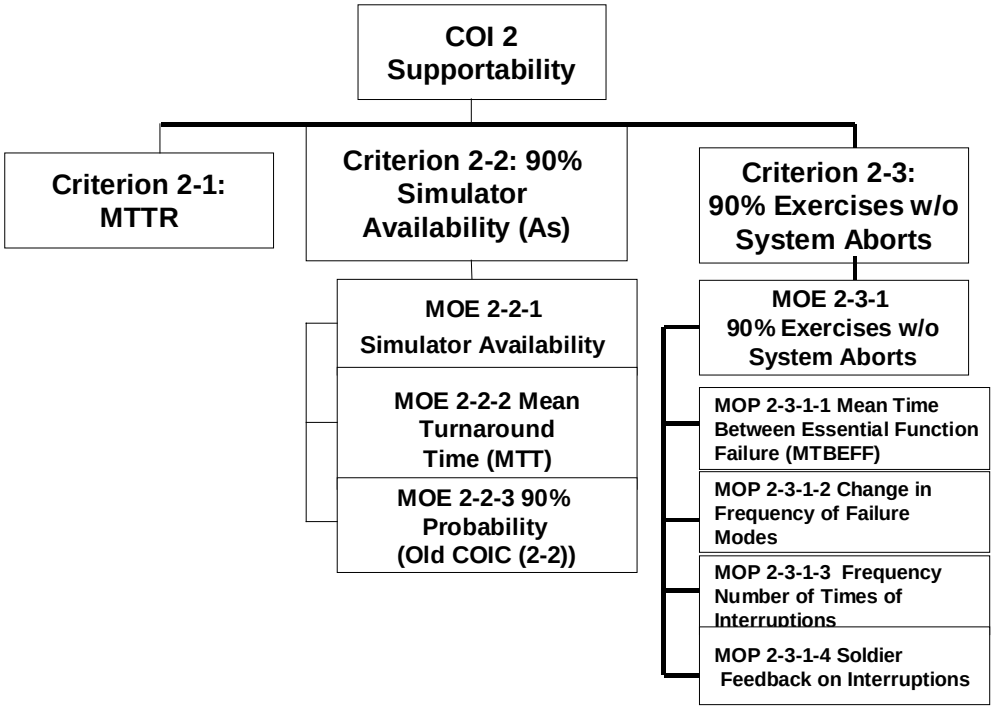

Figure 3-1. CCTT Evaluation Dendritic

3.1 OPERATIONAL EFFECTIVENESS. Not evaluated. The CCTT system met all system effectiveness requirements during previous operational tests.

3.2 OPERATIONAL SUITABILITY. The CCTT fixed site system demonstrated a high level of reliability, availability, and maintainability (RAM) during FOTE 1b, and proved to be suitable to support unit training.

3.2.1 Critical Operational Issue (COI) 2. Can the CCTT system support the anticipated operational training mission?

3.2.1.1 Criterion 2-1. The system will demonstrate a mean-time-to-repair (MTTR) of 1.11 hours or less. Not evaluated during FOTE 1b; the criterion was met during IOTE.

3.2.1.2 Criterion 2-2. The system will demonstrate no less than 90% availability for each major subsystem during the normal training day.

a. All three of the tested major subsystems (M1A1, M2/M3, and Dismounted Infantry (DI)) exhibited levels of simulator availability in excess of 90% during the nominal 9-hour training day (MOE 2-2-1). The training day was normally measured from 0830 to 1730 Monday through Friday during the 4-week test period. These times were adjusted on three occasions to account for power outages occurring at the test facility. No record test times were stripped out of the total times. Appendix A provides RAM definitions. Table 3-1 summarizes simulator availability (A_s) results from FOTE 1b; times presented in total minutes.

TABLE 3-1. FOTE 1b SIMULATOR AVAILABILITY (A_s)

Type Module	Total Time (TT) (mins)	Down Time (DT) (mins)	Up Time (mins)	$A_s = \frac{TT-DT}{TT}$
M1A1	150878	2064	148814	**98.6%**
M2/M3	150878	2172	148706	**98.6%**
DI	64662	100	64562	**99.8%**
Overall	366418	4336	362082	**98.8%**

b. The cumulative Mean Turnaround Time (MTT) (MOE 2-2-2) for all three manned modules types (M1A1, M2/M3, and DI) was 0.54 hours during FOTE 1b, which is significantly less than the IOTE MTT of 15.36 hours and had some extensive logistic delay times. The MTT captures the time required to bring a down module back to mission capable status. Having a low FOTE 1b MTT helped the system meet the availability requirement by minimizing the non-operational time associated with incidents. The frequency of maintenance delays observed during IOTE rarely occurred during the FOTE, due to less frequent failures and a skilled maintenance team. All parts required for repair were available on site. The MTT was computed using all incidents scored as Essential Function Failures (EFFs), including system aborts, with the times from dependent events added into the overall down time for the primary failure. A summary of the MTT calculations is presented in Table 3-2.

TABLE 3-2. FOTE 1b MEAN TURN AROUND TIMES FOR MANNED MODULES

Type Module	Number EFFs (including SA/EFFs)	*Time to Repair plus Logistics & Admin Delay times for EFFs (hours)	IOTE MTT (hours)	FOTE 1b MTT (hours)
M1A1	27	18.05	22.18	**0.67**
M2/M3	31	14.23	14.48	**0.46**
DI	3	0.73	0.81	**0.24**
Overall	61	33.01	15.36	**0.54**

*includes times for dependent events.

c. The CCTT system met the 90% probability that no more than 10% of each type of the manned module at a given site is simultaneously down for more than 30 minutes during a normal training day (MOE 2-2-3). [COIC 2-2 was modified by TRADOC System Manager (TSM) and approved prior to the start of FOTE 1b; thus, the old COIC 2-2 version became MOE 2-2-3.] There was only one day during the FOTE 1b with a facility abort, which occurs when two or more manned modules of the same type were down simultaneously for 30 minutes or more during the training day. The FOTE 1b results are compared to the IOTE results in Table 3-3. During the IOTE, the training day was a 10-hour day per the COIC. To provide a 9-hour day comparison, the IOTE data were adjusted to match the same 9-hour training day period as the FOTE 1b. The M1A1 and DI module types demonstrated, a 90% probability with 88% confidence that no more than 10% of the manned modules will be simultaneously down for more than 30 minutes. While only a slightly more than 60% confidence was achieved for the M2/M3, the increase in the confidence level from IOTE, plus the large increase in reliability in terms of Mean Time Between Essential Function Failure (MTBEFF) and overall high level of availability, provides additional assurance that the M2/M3 modules are adequately reliable and available.

TABLE 3-3. 0.90 PROBABILITY CONFIDENCE THAT TWO OR MORE MANNED MODULES WILL NOT BE DOWN SIMULTANEOUSLY ≥ 30 MINUTES

Type Module	IOTE					FOTE 1b 9-hour day		
	10-hour training day (0800-1800)			9-hour training day (0830-1730)		Total Number Test Days	Total Days without facility abort	**Confidence that 0.90 P(success) was met**
	Total Number Test Days	Total Days without facility abort	Confidence that 0.90 P(success) was met	Total Days without facility abort	Confidence that 0.90 P (success) was met			
M1A1	55	35	0.00	35	**0.00**	20	20	**0.88**
M1A2	55	45	0.02	47	**0.09**	Not Tested		
M2/M3	55	45	0.02	46	**0.04**	20	19	**0.61**
DI	55	54	0.98	54	**0.98**	20	20	**0.88**

d. The FOTE 1b results clearly illustrate a maturing system that exhibits a high level of availability supported by good maintenance and logistics support. In general, all modules required for training were available when necessary, and quickly returned to operational status when an incident occurred.

3.2.1.3 Criterion 2-3. The system will demonstrate that the system complete 90% of the platoon and 90% of the company and company team tactical training exercises without a SA.

a. The CCTT fixed site system exceeded the requirement (MOE 2-3-1), and improved on the IOTE results, where this criterion was considered met. During FOTE 1b, only 4 of 82 exercises, including task force exercises, were aborted during the test; of the four, three finished without important fire support assets available. Only one exercise was aborted (delayed) due to manned module failures. All computations followed the same methods as used the IOTE, counting exercises with trainer or exercise system aborts that occurred and did not include

familiarization exercises or exercises cut short by power outages. Table 3-4 presents a comparison of IOTE and FOTE 1b results.

TABLE 3-4. PERCENTAGE OF EXERCISES COMPLETED WITHOUT TRAINER OR EXERCISE SYSTEM ABORTS

Training Level	IOTE			FOTE 1b			
	Number exercises conducted	Number exercises w/o a SA	Percent successful exercises	Number exercises conducted	Number exercises w/o a SA	Percent successful exercises	Confidence 90% exercises w/o a SA
Platoon	98	94	95.9	35	34	**97.1**	**0.88**
Company Team	93	82	88.1	40	38	**95.0**	**0.78**
Battalion/ Task Force (Not required)	5	3	60.0	7	6	**85.7**	**0.15**

b. The increased reliability of the manned modules contributed to improvement in both the increased percentages of successful exercises and simulator availability. The improvements in MTBEFF over IOTE ranged from 61% for the DI to 148% for the M2/M3 to 253% for the M1A1 (MOP 2-3-1-1). A comparison of FOTE 1b MTBEFF results to IOTE and LUT is presented in Table 3-5 (NOTE: M1A2 modules not available at Fort Benning).

TABLE 3-5. FOTE 1b MEAN TIME BETWEEN ESSENTIAL FUNCTION FAILURE FOR MANNED MODULES

	M1A1	M1A2	M2/M3	DI
Total Operating Hours	2703.4		2567.8	457.0
Number EFFs (including SAs)	27		31	3
FOTE 1b MTBEFF	**100.1**		**82.8**	**152.3**
IOTE MTBEFF	28.32	33.30	33.33	94.38
LUT MTBEFF	16.56	15.25	24.63	51.79

c. Table 3-6 presents the changes in failure modes (MOP 2-3-1-2) as observed during IOTE and identified during FOTE 1b. Contributing to these improvements were fixes applied to selected failure modes (as shown in Table 3-6). Also thought to contribute to the higher reliability was that the systems used during IOT were pre-production systems while those used in FOTE 1b were production systems with additional quality controls and mature designs. The maintenance personnel also performed an aggressive preventive maintenance program for the system. The two failure modes with increases in frequency do not seem to affect the reliability of the system significantly, and the modes are easily fixed with recycling of systems or tightening of cables. One new failure mode was identified, but is not a significant impact on the system.

TABLE 3-6. CHANGES IN SELECTED FAILURE MODES FROM IOTE TO FOTE 1b

Failure Types	IOTE Interruptions				FOTE 1b Interruptions				Change in Frequency from IOTE to FOTE
	Number EFFs	Number NEFFs	Total Number Incidents	Frequency per 1000 hour simulator operating time	Number EFFs	Number NEFFs	Total Number Incidents	Frequency per 1000 hour simulator operating time	
Image Generator timeouts & reboots	196	246	442	20.72	9	17	26	4.46	-78.47
Image Generator power up	0	155	155	7.27	0	1	1	0.17	-97.64
Flipped in Wadi	28	125 NFUs	153	7.17	12	14 NFUs	26	4.46	-37.81
Light bulbs out	3	173	176	8.25	0	7	7	1.20	-85.44
Monitor & monitor cables adjustments	11	56	67	3.14	3	33	36	6.18	96.65
Lens covers missing	0	59	59	2.77	0	0	0	0.00	-100.00
CPU errors/resets	7	43	50	2.34	0	0	0	0.00	-100.00
M2/M3 Turret shield door, switch & spring	5	41	46	2.16	0	6	6	1.03	-52.26
PIE Ethernet card resets	13	31	44	2.06	6	9	15	2.57	**24.77**
"Icon turned Red" – loss of network communications	16	12	28	1.31	0	0	0	0.00	-100.00
Head tracker & cables	17	8	25	1.17	1	4	5	0.86	-26.80
Monitors 17 " & 26	5	25	30	1.41	1	6	7	1.20	-14.60
M1 Ammo doors off/loose	6	10	16	0.75	0	2	2	0.34	-54.25
Digital Input Output Boards	8	5	13	0.61	0	1	1	0.17	-71.85
Video Boards	8	2	10	0.47	0	1	1	0.17	-63.40
Analog Input Output Boards	5	2	7	0.33	0	1	1	0.17	-47.72

d. Increased reliability leads to significant decreases in the frequency of interruptions during training exercises (MOP 2-3-1-3). Table 3-7 presents a comparison of the frequency of interruptions experienced between IOTE and FOTE 1b.

TABLE 3-7. COMPARISON OF THE FREQUENCY OF INTERRUPTIONS IN TRAINING BETWEEN IOTE AND FOTE 1b

	IOTE		FOTE 1b		Change from IOTE to FOTE1b			
	Company Team exercises	Platoon exercises	Company Team exercises	Platoon exercises				
Number Exercises	93	98	40	35	Company Team exercises		Platoon Exercises	
Number EFFs	334	69	32	8	**Pt Est**	**95% LCL**	**Pt Est**	**95% LCL**
Average number of EFFs/ exercise	3.59	0.70	**0.80**	**0.22**	**77.7%**	**69.6%**	**68.6%**	**38.7%**
Number of EFFs, NEFFs, NFUs & DEs	600	138	90	21				
Avg number of incidents/ exercise	6.45	1.41	**2.25**	**0.60**	**65.1%**	**57.9%**	**57.4%**	**36.6%**

e. Questionnaire responses indicate that training was not adversely impacted by delays caused by CCTT module failures (MOP 2-3-1-4). Interruptions had a minimal impact on the performance of individual and collective tasks, individual and crew morale and attitude, and accomplishing training objectives, according to leader ratings (Table 3-8). Based on OC and Leader responses, 100 percent of the Platoon and Task Force, 99.2 percent of the Company and Crew, and over 94 percent of all individual crew member training objectives were met as presented in Table 3-9.

TABLE 3-8. RATINGS ON THE IMPACT OF TRAINING INTERRUPTIONS

Rate the impact that interruptions had on you in the following areas:		
N=141	**Rating scale: 1=unacceptable ----> 10=no impact**	**MEAN**
Performance of individual tasks		8.14
Performance of collective tasks		7.92
Individual morale		8.01
Individual attitude		8.08
Crew morale		8.06
Crew attitude		7.98

TABLE 3-9. RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES

As a leader, do you feel that training objectives were met?								
By duty position								
	Leaders N=138		**Gunners N=122**		**Loaders N=54**		**Drivers N=127**	
Answer	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Total	135	3	115	7	51	3	125	2
Percent	97.8	2.2	94.3	5.7	94.4	5.6	98.4	1.6
By organization								
	Crew N=130		**Platoon N=124**		**Company N=126**		**Task force N=62**	
Total	129	1	124	0	125	1	62	0
Percent	99.2	.8	100	0	99.2	.8	100	0

Means were computed on Leader responses to questions on the minimum number of manned simulator modules and the number of tactical vehicles needed to start and continue training exercises for platoon, company, and task force level. For a platoon simulation exercise, leaders indicated that four manned modules are required to start and continue a simulation exercise. Four tactical vehicles are also required to begin and continue an actual field training exercise. To begin and continue a company level simulation exercise, 14 manned modules are required. For an actual field training exercise, 14 tactical systems are required. Leaders indicated that to start and continue a task force simulation that over 34 operational simulators are needed. To begin and continue a task force level field training exercise, over 34 systems are also required. Tables contained at Appendix B show a comparison of data from survey responses administered during IOTE to those of FOTE 1b. Also included are brief summaries and tables that show survey responses and ratings by week and by duty position for FOTE 1b survey results.

3.2.1.4 Integrated Logistics Support (ILS). During FOTE 1b, an assessment was conducted to determine if the CCTT is logistically supportable in the field. The results the CCTT system has now demonstrated the ability to be supported in the field. The ILS detailed results can be found in Appendix C.

3.2.2 Discussion of Suitability. From the results of FOTE 1b, the CCTT fixed site system appears to have resolved or reduced the majority of its reliability problems identified in IOTE. This led to a reduced frequency of interruptions to training that unit leaders have identified as having little or no impact on training. Additionally, the higher level of reliability of the system leads to the system meeting COIC 2-2 requirements and providing a high level of simulator availability necessary to support training. Finally, the frequency of maintenance delays experienced in IOTE has been reduced significantly, in part due to reliable system. The CCTT has met all suitability requirements and is assessed as suitable to support training.

3.3 OPERATIONAL SURVIVABILITY. Not evaluated during FOTE 1b.

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CHAPTER 4
RECOMMENDATIONS.

4.1 IMPROVE THE SYSTEM. There are no needed improvements identified for the CCTT system in this configuration. There is no need for additional RAM testing in this configuration.

4.2 MODIFICATIONS TO TEST AND EVALUATION STRATEGY.

a. Modify the Test and Evaluation Master Plan (TEMP) to determine test and evaluation strategies for future development efforts, as additional configurations and/or functionality for Blocks 1 through Block 7 are defined.

b. Develop a methodology for testing terrain databases (specifically the P1) to ensure readiness for use with CCTT and fielding.

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APPENDIX A
DATA DEFINITIONS

- System Abort (SA). SA is defined in general terms as an event that prevents the start or the continuation of any required training exercise or which results in termination of an exercise. There are three broad categories of SA events that affect the facility, an exercise, or training in general:
  -- $SA_{Facility}$ (SA_F) is an event during which 10% of the necessary items (e.g., Abrams manned modules, Bradley manned modules, DIM, AAR, SAF, unit support workstations) are unavailable (and are unable to be made available within 30 minutes) at any time during the normal training day.
  -- $SA_{Exercise}$ (SA_E) is an event that prevents an exercise from starting, continuing, or causes termination of the exercise.
  --$SA_{Training}$ (SA_T) is an event which causes frequent training interruption(s) or degradation(s) to the point that effective training is no longer possible.

- Essential Function Failure (EFF): an event which results in an interruption of a training exercise or which results in a degradation of a training exercise.

- Non-Essential Function Failure (NEFF): an event not serious enough to result in degradation, interruption, or termination of an exercise but which has an obvious indication (of a failure or fault) and/or requires maintenance to remedy the situation.

- Dependent Event (DE): an event that was caused by another incident and occurs simultaneously or nearly simultaneously to the parent/primary incident.

- Normal Training Day: Per the revised Operational Mode Summary/Mission Profile (OMS/MP), the normal training day is a 9 hour period of operations, nominally 8-5 daily, with one training period in the morning and one in the afternoon, split in the middle by lunch.

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APPENDIX B
MANPRINT

Table of Contents

Table Of Contents (Continued)

APPENDIX B
MANPRINT

B.1 Number of Simulators Required to Conduct Acceptable Training. Unit leader responses to questions regarding the number of M1 and M2/M3 simulators required to start and continue training at Platoon, Company, and Task Force levels are shown in Tables B-1 through B-3. Like data from the IOTE report are also presented for comparison. The number of simulators required is fairly consistent between the two evaluations.

TABLE B-1. COMPARISON OF IOTE AND FOTE1b UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED FOR PLATOON LEVEL TRAINING

Question: As a leader, what do you consider the **minimum** number of **operational** manned modules (simulators) that would be required to **start** a platoon exercise in order to conduct **acceptable** training?					
	Number of manned modules				
FOTE N = 118	1	2	3	4	OTHER
Number	0	2	29	83	4
Percentage	0	1.7	24.6	70.3	3.4
IOTE N = 154	1	2	3	4	OTHER
Number	2	4	39	101	8
Percentage	1.3	2.6	25.3	65.6	5.2
Question: As a leader, what do you consider the **minimum** number of **operational** manned modules (simulators) that would be required to **continue** a platoon exercise in order to conduct **acceptable** training?					
	Number of manned modules				
FOTE N = 119	1	2	3	4	OTHER
Number	0	8	49	60	2
Percentage	0	6.7	41.2	50.4	1.7
IOTE N = 154	1	2	3	4	OTHER
Number	4	24	68	51	7
Percentage	2.6	15.6	44.2	33.1	4.5

TABLE B-2. COMPARISON OF IOTE AND FOTE1b UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED FOR COMPANY LEVEL TRAINING

Question: As a leader, what do you consider the **minimum** number of **operational** simulators that would be required to **start** a company/team exercise in order to conduct **acceptable** training? (M1s & M2/M3s only)												
	Number of manned modules											
FOTE N=117	0	1	2-4	5-7	8	9	10	11	12	13	14	>14
Number	0	0	0	4	3	3	9	15	16	5	46	16
Percentage	0	0	0	3.4	2.6	2.6	7.7	12.8	13.7	4.3	39.3	13.7
IOTE N = 157	0	1	2-4	5-7	8	9	10	11	12	13	14	>14
Number	10	25	7	2	5	3	9	3	22	2	55	14
Percentage	6.4	15.9	4.5	1.3	3.2	1.9	5.7	1.9	14.0	1.3	35.0	8.9
Recomputed w/0=14,1=13	0	0	7	2	5	3	9	3	22	27	65	14
Recomputed percentages	0	0	4.5	1.3	3.2	1.9	5.7	1.9	14.0	17.2	41.4	8.9

TABLE B-3. COMPARISON OF IOTE AND FOTE1b UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED FOR COMPANY LEVEL TRAINING

Question: As a leader, what do you consider the **minimum** number of **operational** simulators that would be required to **continue** a company team exercise in order to conduct **acceptable** training? (M1s and M2/M3s only)												
	Number of manned modules											
FOTE N= 17	0	1	2-4	5-7	8	9	10	11	12	13	14	>14
Number	0	0	0	4	3	3	9	15	16	5	46	16
Percentage	0	0	0	3.4	2.6	2.6	7.7	12.8	13.7	4.3	39.3	13
IOTE N=157	0	1	2-4	5-7	8	9	10	11	12	13	14	>14
Number	12	24	11	12	14	6	24	7	14	1	23	9
Percentage	7.6	15.3	7.0	7.6	8.9	3.8	15.3	4.5	8.9	0.6	14.6	5.7
Recomputed w/o=14,1=13	0	0	11	12	14	6	24	7	14	25	35	9
Recomputed percentages	0	0	7.0	7.6	8.9	3.8	15.3	4.5	8.9	15.9	22.3	5.7

B.2 Causes of Training Interruptions. Responses to surveys indicate that reasons for one third of interruptions were unknown, one third were caused by hardware failures, and sixteen

percent each were attributed to software and operator errors. Reasons (as identified by the unit) for interruptions are shown by week and type simulator in Table B-4.

TABLE B-4. RESPONSES TO QUESTIONS REGARDING CAUSES OF TRAINING INTERRUPTIONS

Question 1: What caused most training interruptions?						
	Week 1	**Week 2**	**Week 3**	**Week 4**	**Total**	
M1 and M2/M3	N=33	N=38	N=27	N=35	N=133	Percent
Unknown	13	11	7	13	44	33.1
Hardware failure	8	8	14	15	45	33.8
Software failure	4	12	2	4	22	16.5
Operator error	7	7	4	3	21	15.8
Controller abort	1	0	0	0	1	.8
M1 only	N=13	N=14	N=10	N=13	N=50	Percent
Unknown	2	2	4	3	11	22.0
Hardware failure	4	3	3	7	17	34.0
Software failure	3	7	1	0	11	22.0
Operator error	4	2	2	3	11	22.0
Controller abort	0	0	0	0	0	0
M2/M3 only	N=14	N=15	N=13	N=14	N=56	Percent
Unknown	5	6	2	6	19	33.9
Hardware failure	4	2	11	5	22	39.3
Software failure	1	4	0	3	8	14.3
Operator error	3	3	0	0	6	10.7
Controller abort	1	0	0	0	1	1.8
OC ratings						
	N=4	N=5	N=1	N=6	N=16	Percent
Unknown	4	3	0	2	9	56.3
Hardware failure	0	1	0	3	4	25.0
Software failure	0	0	1	1	2	12.5
Operator error	0	1	0	0	1	6.3
Controller abort	0	0	0	0	0	0
OTHER Participant ratings						
	N=2	N=4	N=3	N=2	N=11	Percent
Unknown	2	0	1	2	5	45.5
Hardware failure	0	2	0	0	2	18.2
Software failure	0	1	0	0	1	9.1
Operator error	0	1	2	0	3	27.3
Controller abort	0	0	0	0	0	0

B.3 Conducting Missions with an Inoperable System. Responses to questions whether regarding whether missions were started when simulators were inoperable or continued when they became inoperable during a mission are detailed in Tables B-5 and B-6. Twenty five percent of respondents indicated that they started missions when simulators were inoperable (Table B-5) and thirty six percent continued missions with systems inoperable (Table B-6).

TABLE B-5. UNIT LEADER RESPONSES TO QUESTIONS REGARDING STARTING A MISSION WHEN A SYSTEM WAS INOPERABLE

Question 2: Did your element ever **start** a mission when a system was inoperable?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=43	1	9	3	5	1	11	5	8	10	33
Sqd Ldr N=9	0	2	0	3	0	2	0	2	0	9
Plt Sgt N=23	2	4	2	4	1	3	0	7	5	18
Plt Ldr N=22	0	6	2	4	2	3	4	1	8	14
CoCdr/XO N=15	0	4	3	1	2	2	3	0	8	7
OCs N=15	0	4	0	5	0	1	2	3	2	13
Other N=11	0	3	0	3	1	3	0	1	1	10
Total N=138	3	32	10	25	7	25	14	22	34	104
Percent	8.6	91.4	28.6	71.4	21.9	78.1	38.9	61.1	24.6	75.4
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=24	0	6	2	4	0	6	4	2	6	18
Plt Sgt N=12	0	3	0	3	1	1	0	4	1	11
Plt Ldr N=12	0	3	0	3	0	3	2	1	2	10
Co Cdr/XO N=8	0	2	1	1	1	1	2	0	4	4
Total N=56	0	14	3	11	2	11	8	7	13	43
Percent	0	100	21.4	78.6	15.4	84.6	53.3	46.7	23.2	76.8
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	1	3	1	1	1	5	1	6	4	15
Sqd Ldr N=9	0	2	0	3	0	2	0	2	0	9
Plt Sgt N=11	2	1	2	1	0	2	0	3	4	7
Plt Ldr N= 10	0	3	2	1	2	0	2	0	6	4
Co Cdr/XO N=7	0	2	2	0	1	1	1	0	4	3
Total N=56	3	11	7	6	4	10	4	11	18	38
Percent	21.4	78.6	53.8	46.2	28.6	71.4	26.7	73.3	32.1	57.9

TABLE B-6. UNIT LEADER RESPONSES TO QUESTIONS REGARDING CONTINUING A MISSION WHEN A SYSTEM WAS INOPERABLE

Question 3: Did your element ever **continue** a mission when a system was inoperable?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=42	3	7	3	5	5	6	6	7	17	25
Sqd Ldr N=9	0	2	0	3	1	1	0	2	1	8
Plt Sgt N=23	3	3	2	4	0	4	2	5	7	16
Plt Ldr N=22	0	6	5	1	2	3	4	1	11	11
Co Cdr/XO N=15	1	3	3	1	2	2	3	0	9	6
OCs N=15	0	4	0	5	1	0	2	3	3	12
Other N=11	0	3	1	2	1	3	0	1	2	9
Total N=137	7	28	14	21	12	19	17	19	50	87
Percent	20	80	40	60	38.7	61.3	47.2	52.8	36.5	63.5
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=23	1	5	2	4	2	3	4	2	9	14
Plt Sgt N=12	1	2	0	3	0	2	1	3	2	10
Plt Ldr N=12	0	3	3	0	1	2	2	1	6	6
Co Cdr/XO N=8	0	2	1	1	1	1	2	0	4	4
Total N=55	2	12	6	8	4	8	9	6	21	34
Percent	14.3	85.7	42.9	57.1	33.3	66.7	60	40	38.2	61.8
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	2	2	1	1	3	3	2	5	8	11
Sqd Ldr N=9	0	2	0	3	1	1	0	2	1	8
Plt Sgt N=11	2	1	2	1	0	2	1	2	5	6
Plt Ldr N=10	0	3	2	1	1	1	2	0	5	5
Co Cdr/XO N=7	1	1	2	0	1	1	1	0	5	2
Total N=56	5	9	7	6	6	8	6	9	24	32
Percent	35.7	64.3	53.8	46.2	42.9	57.1	40	60	42.9	57.1

B.4 Meeting Training Objectives. Leaders were surveyed as to whether training objectives were met for individual duty positions and for each organization level from crew through task force. All individual training objectives were met. Tables B-7 through B-10 provide details by week and by duty positions on meeting training objectives. Tables B-11 through B-14 provide the same level of detail on meeting organization training objectives.

TABLE B-7. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR LEADERS

Question 4: Were training objectives for **Leaders** met this week?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=43	10	0	8	0	12	0	13	0	43	0
Sqd Ldr N=9	2	0	3	0	2	0	1	1	8	1
Plt Sgt N=23	6	0	6	0	5	0	6	0	23	0
Plt Ldr N=22	6	0	6	0	5	0	5	0	22	0
Co Cdr/XO N=15	4	0	4	0	4	0	3	0	15	0
OCs N=14	4	0	5	0	1	0	4	0	14	0
Other N=12	3	0	3	1	3	1	1	0	10	2
Total N=138	35	0	35	1	32	1	33	1	135	3
Percent	100	0	97.2	2.8	97.0	3.0	97.1	2.9	97.8	2.2
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=24	6	0	6	0	6	0	6	0	24	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	3	0	3	0	12	0
Co Cdr/XO N=8	2	0	2	0	2	0	2	0	8	0
Total N=56	14	0	14	0	13	0	15	0	56	0
Percent	100	0	100	0	100	0	100	0	100	0
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=9	2	0	3	0	2	0	1	1	8	1
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=10	3	0	3	0	2	0	2	0	10	0
Co Cdr/XO N=7	2	0	2	0	2	0	1	0	7	0
Total N=56	14	0	13	0	14	0	14	1	55	0
Percent	100	0	100	0	100	0	93.3	6.7	98.2	1.8

TABLE B-8. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR GUNNERS

Question 5: Were training objectives for **Gunners** met this week?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=43	8	2	8	0	12	0	12	1	40	3
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=23	6	0	6	0	4	0	7	0	23	0
Plt Ldr N=21	6	0	6	0	4	0	5	0	21	0
Co Cdr/XO N=15	3	1	4	0	3	1	3	0	13	2
OCs N=7	1	0	3	0	1	0	2	0	7	0
Other N=4	1	2	0	0	1	0	0	0	2	2
Total N=122	27	5	30	0	27	1	31	1	115	7
Percent	84.4	15.6	100	0	96.4	3.6	96.9	3.1	94.3	5.7
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=24	4	2	6	0	6	0	5	1	21	3
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	3	0	3	0	12	0
Co Cdr/XO N=80	1	1	2	0	1	1	2	0	6	2
Total N=56	11	3	14	0	12	1	14	1	51	5
Percent	78.6	21.4	100	0	92.3	7.7	93.3	6.7	91.1	8.9
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=9	3	0	3	0	1	0	2	0	9	0
Co Cdr/XO N=7	2	0	2	0	2	0	1	0	7	0
Total N=55	14	0	13	0	13	0	15	0	55	0
Percent	100	0	100	0	100	0	100	0	100	0

TABLE B-9. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR LOADERS (M1 only)

Question 6: Were training objectives for **Loaders** met this week?										
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=23	6	0	6	0	6	0	5	0	23	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	2	1	2	1	10	2
Co Cdr/XO N=7	1	0	2	0	1	1	2	0	6	1
Total N=54	13	0	14	0	11	2	13	1	51	3
Percent	100	0	100	0	84.6	15.4	92.9	7.1	94.4	5.6

TABLE B-10. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR DRIVERS

Question 7: Were training objectives for **Drivers** met this week?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=42	10	0	8	0	12	0	12	0	42	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=23	6	0	6	0	4	0	7	0	23	0
Plt Ldr N=22	6	0	6	0	4	1	5	0	21	1
Co Cdr/XO N=15	4	0	4	0	3	1	3	0	14	1
OCs N=6	1	0	2	0	1	0	2	0	6	0
Other N=10	3	0	2	0	4	0	1	0	10	0
Total N=127	32	0	31	0	30	2	32	0	125	2
Percent	100	0	100	0	93.8	6.2	100	0	98.4	1.6
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=23	6	0	6	0	6	0	5	0	23	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	3	0	3	0	12	0
Co Cdr/XO N=8	2	0	2	0	2	0	2	0	8	0
Total N=55	14	0	14	0	13	0	14	0	55	0
Percent	100	0	100	0	100	0	100	0	100	0
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=10	3	0	3	0	1	1	2	0	9	1
Co Cdr/XO N=7	2	0	2	0	1	1	1	0	6	1
Total N=56	14	0	13	0	12	2	15	0	54	2
Percent	100	0	100	0	85.7	14.3	100	0	96.4	3.6

TABLE B-11. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR CREWS

Question 8: Were **Crew** training objectives met this week? (M1 and M2/M3)										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=42	10	0	8	0	12	0	12	0	42	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=23	6	0	6	0	4	0	7	0	23	0
Plt Ldr N=22	6	0	6	0	5	0	5	0	22	0
Co Cdr/XO N=15	4	0	4	0	3	1	3	0	14	1
OCs N=9	3	0	3	0	1	0	2	0	9	0
Other N=10	3	0	2	0	4	0	1	0	10	0
Total N=130	34	0	32	0	31	1	32	0	129	1
Percent	100	0	100	0	96.9	3.1	100	0	99.2	.8
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=23	6	0	6	0	6	0	5	0	23	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	3	0	3	0	12	0
Co Cdr/XO N=8	2	0	2	0	2	0	2	0	8	0
Total N=55	14	0	14	0	13	0	14	0	55	0
Percent	100	0	100	0	100	0	100	0	100	0
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=10	3	0	3	0	2	0	2	0	10	0
Co Cdr/XO N=7	2	0	2	0	1	1	1	0	6	1
Total N=56	14	0	13	0	13	1	15	0	55	1
Percent	100	0	100	0	92.9	7.1	100	0	98.2	1.8

TABLE B-12. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR PLATOONS

Question 9: Were **Platoon** training objectives met this week?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=42	10	0	8	0	12	0	12	0	42	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=23	6	0	6	0	4	0	7	0	23	0
Plt Ldr N=22	6	0	6	0	5	0	5	0	22	0
Co Cdr/XO N=14	4	0	3	0	4	0	3	0	14	0
OCs N=11	3	0	4	0	1	0	3	0	11	0
Other N=3	1	0	1	0	1	0	0	0	3	0
Total N=124	32	0	31	0	29	0	32	0	124	0
Percent	100	0	100	0	100	0	100	0	100	0
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=23	6	0	6	0	6	0	5	0	23	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=12	3	0	3	0	3	0	3	0	12	0
Co Cdr/XO N=8	2	0	2	0	2	0	2	0	8	0
Total N=55	14	0	14	0	13	0	14	0	55	0
Percent	100	0	100	0	100	0	100	0	100	0
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=9	2	0	3	0	2	0	2	0	9	0
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=10	3	0	3	0	2	0	2	0	10	0
Co Cdr/XO N=6	2	0	1	0	2	0	1	0	6	0
Total N=55	14	0	12	0	14	0	15	0	55	0
Percent	100	0	100	0	100	0	100	0	100	0

TABLE B-13. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR COMPANIES

Question 10: Were **Company** training objectives met this week?										
M1 and M2/M3	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=41	10	0	8	0	11	0	12	0	41	0
Sqd Ldr N=8	2	0	3	0	2	0	1	0	8	0
Plt Sgt N=23	6	0	6	0	4	0	7	0	23	0
Plt Ldr N=21	5	0	6	0	4	1	5	0	20	1
Co Cdr/XO N=15	4	0	4	0	4	0	3	0	15	0
OCs N=11	3	0	4	0	1	0	3	0	11	0
Other N=7	3	0	1	0	2	0	1	0	7	0
Total N=126	33	0	32	0	28	1	32	0	125	1
Percent	100	0	100	0	96.6	3.4	100	0	99.2	.8
M1 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=22	6	0	6	0	5	0	5	0	22	0
Plt Sgt N=12	3	0	3	0	2	0	4	0	12	0
Plt Ldr N=11	2	0	3	0	3	0	3	0	11	0
Co Cdr/XO N=8	2	0	2	0	2	0	2	0	8	0
Total N=53	13	0	14	0	12	0	14	0	53	0
Percent	100	0	100	0	100	0	100	0	100	0
M2/M3 only	**Week 1**		**Week 2**		**Week 3**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=19	4	0	2	0	6	0	7	0	19	0
Sqd Ldr N=8	2	0	3	0	2	0	1	0	8	0
Plt Sgt N=11	3	0	3	0	2	0	3	0	11	0
Plt Ldr N=10	3	0	3	0	1	1	2	0	9	1
Co Cdr/XO N=7	2	0	2	0	2	0	1	0	7	0
Total N=55	14	0	13	0	13	1	14	0	54	1
Percent	100	0	100	0	92.9	7.1	100	0	98.2	1.8

TABLE B-14. UNIT LEADER RESPONSES TO QUESTIONS REGARDING MEETING TRAINING OBJECTIVES FOR THE TASK FORCE

Question 11: Were **Task Force** training objectives met this week?						
M1 and M2/M3	**Week 2**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=20	8	0	12	0	20	0
Sqd Ldr N=4	3	0	1	0	4	0
Plt Sgt N=10	5	0	5	0	10	0
Plt Ldr N=10	5	0	5	0	10	0
Co Cdr/XO N=7	4	0	3	0	7	0
OCs N=7	5	0	2	0	7	0
Other N=4	3	0	1	0	4	0
Total N=62	33	0	29	0	62	0
Percent	100	0	100	0	100	0
M1 only	**Week 2**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=12	6	0	6	0	12	0
Plt Sgt N=5	2	0	3	0	5	0
Plt Ldr N=6	3	0	3	0	6	0
Co Cdr/XO N=4	2	0	2	0	4	0
Total N=27	13	0	14	0	27	0
Percent	100	0	100	0	100	0
M2/M3 only	**Week 2**		**Week 4**		**Total**	
Duty Position	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
TC/BC N=8	2	0	6	0	8	0
Sqd Ldr N=4	3	0	1	0	4	0
Plt Sgt N=5	3	0	2	0	5	0
Plt Ldr N=4	2	0	2	0	4	0
Co Cdr/XO N=3	2	0	1	0	3	0
Total N=24	12	0	12	0	24	0
Percent	100	0	100	0	100	0

B.5 Number of Simulators Required to Conduct Acceptable Training. Details of unit leader responses to questions regarding the number of M1 and M2/M3 simulators and tactical vehicles required to start and continue acceptable training at Platoon, Company, and Task Force levels are

shown in tables B-15 through B-26. The number of simulator modules required to conduct simulation training is consistent with the number of tactical vehicles required to conduct actual field training exercises.

TABLE B-15. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO START PLATOON LEVEL TRAINING

Question 12: As a leader, what do you consider the **minimum** number of **operational** manned modules (simulators) that would be required to **start** a platoon exercise in order to conduct **acceptable** training?					
M1 and M2/M3	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=41	0	1	14	26	0
Sqd Ldr N=9	0	1	0	8	0
Plt Sgt N=23	0	0	5	17	1
Plt Ldr N=22	0	0	6	16	0
Co Cdr/XO N=15	0	0	2	11	2
Number N=110	0	2	27	78	3
Percentage	0	1.82	24.55	70.91	2.73
M1 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=23	0	1	9	14	0
Plt Sgt N=12	0	0	2	10	0
Plt Ldr N=12	0	0	6	6	0
Co Cdr/XO N=8	0	0	0	7	1
Number N=56	0	1	17	37	1
Percentage	0	1.79	30.36	66.07	1.79
M2/M3 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=17	0	0	5	12	0
Sqd Ldr N=9	0	1	0	8	0
Plt Sgt N=11	0	0	3	7	1
Plt Ldr N=10	0	0	0	10	0
Co Cdr/XO N=7	0	0	2	4	1
Number N=54	0	1	10	41	2
Percentage	0	1.79	17.86	73.21	7.14

TABLE B-16. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO START PLATOON LEVEL TRAINING

Question 13: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **start** a platoon actual training exercise in order to conduct **acceptable** training?					
M1 and M2/M3	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=41	0	1	16	24	0
Sqd Ldr N=9	0	1	0	8	0
Plt Sgt N=22	0	0	5	17	0
Plt Ldr N=22	0	0	8	13	1
Co Cdr/XO N=15	0	0	3	10	2
Number N=109	0	2	32	72	3
Percentage	0	1.83	29.36	66.06	2.75
M1 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=24	0	1	11	12	0
Plt Sgt N=12	0	0	2	10	0
Plt Ldr N=12	0	0	8	4	0
Co Cdr/XO N=8	0	0	1	7	0
Number N=56	0	1	22	33	0
Percentage	0	1.79	39.29	58.93	0
M2/M3 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**Other**
TC/BC N=17	0	0	5	12	0
Sqd Ldr N=9	0	1	0	8	0
Plt Sgt N=10	0	0	3	7	0
Plt Ldr N=10	0	0	0	9	1
Co Cdr/XO N=7	0	0	2	3	2
Number N=53	0	1	10	39	3
Percentage	0	1.89	18.87	73.58	5.66

TABLE B-17. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO CONTINUE PLATOON LEVEL TRAINING

Question 14: As a leader, what do you consider the **minimum** number of **operational simulators** that would be required to **continue** a platoon exercise in order to conduct **acceptable** training?					
M1 and M2/M3	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=42	0	4	22	16	0
Sqd Ldr N=9	0	2	2	5	0
Plt Sgt N=23	0	0	8	15	0
Plt Ldr N=22	0	0	9	13	0
Co Cdr/XO N=15	0	1	5	8	1
Number N=111	0	7	46	57	1
Percentage	0	6.31	41.44	51.35	.90
M1 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=24	0	1	14	9	0
Plt Sgt N=12	0	0	4	8	0
Plt Ldr N=12	0	0	8	4	0
Co Cdr/XO N=8	0	0	2	6	0
Number N=56	0	1	28	27	0
Percentage	0	1.79	50	48.21	0
M2/M3 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=18	0	3	8	7	0
Sqd Ldr N=9	0	2	2	5	0
Plt Sgt N=11	0	0	4	7	0
Plt Ldr N=10	0	0	1	9	0
Co Cdr/XO N=7	0	1	3	2	1
Number N=55	0	6	18	30	1
Percentage	0	10.91	32.73	54.55	1.82

TABLE B-18. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO CONTINUE PLATOON LEVEL TRAINING

Question 15: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **continue** a platoon actual training exercise in order to conduct **acceptable** training?					
M1 and M2/M3	Number of manned modules				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=41	0	2	23	15	1
Sqd Ldr N=9	0	2	2	5	0
Plt Sgt N=23	0	0	7	16	0
Plt Ldr N=22	0	0	11	11	0
Co Cdr/XO N=15	0	1	5	7	2
Number N=110	0	5	48	54	3
Percentage	0	4.55	43.64	49.09	2.73
M1 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=24	0	0	15	9	0
Plt Sgt N=12	0	0	4	8	0
Plt Ldr N=12	0	0	10	2	0
Co Cdr/XO N=8	0	0	2	6	0
Number N=56	0	0	31	25	0
Percentage	0	0	55.36	44.64	0
M2/M3 only	**Number of manned modules**				
Duty Position	**1**	**2**	**3**	**4**	**other**
TC/BC N=17	0	2	8	6	1
Sqd Ldr N=9	0	2	2	5	0
Plt Sgt N=11	0	0	3	8	0
Plt Ldr N=10	0	0	1	9	0
Co Cdr/XO N=7	0	1	3	1	2
Number N=54	0	5	17	29	3
Percentage	0	9.26	31.48	53.70	5.56

TABLE B-19. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO START COMPANY LEVEL TRAINING

Question 16: As a leader, what do you consider the **minimum** number of **operational** manned modules (simulators) that would be required to **start** a company/team exercise in order to conduct **acceptable** training?											
M1 and M2/M3	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=41	0	0	1	1	2	6	8	6	0	16	1
Sqd Ldr N=8	0	0	1	0	0	0	0	1	0	4	2
Plt Sgt N=22	0	0	0	0	0	1	3	2	2	10	4
Plt Ldr N=22	0	0	0	0	0	1	3	5	1	9	3
CoCdr/XO N=15	0	0	0	1	0	1	1	2	1	6	3
Number N=108	0	0	2	2	2	9	15	16	4	45	13
Percentage	0	0	1.9	1.9	1.9	8.3	13.9	14.8	3.7	41.7	12.0
M1 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=23	0	0	0	0	1	3	8	3	0	8	0
Plt Sgt N=12	0	0	0	0	0	0	2	1	0	7	2
Plt Ldr N=12	0	0	0	0	0	0	3	3	1	5	0
CoCdr/XO N=8	0	0	0	0	0	0	0	1	0	5	2
Number N=55	0	0	0	0	1	3	13	8	1	25	4
Percentage	0	0	0	0	1.8	5.5	23.6	14.6	1.8	45.4	7.3
M2/M3 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=18	0	0	1	1	1	3	0	3	0	8	1
Sqd Ldr N=8	0	0	1	0	0	0	0	1	0	4	2
Plt Sgt N=10	0	0	0	0	0	1	1	1	2	3	2
Plt Ldr N=10	0	0	0	0	0	1	0	2	0	4	3
CoCdr/XO N=7	0	0	0	1	0	1	1	1	1	1	1
Number N=53	0	0	2	2	1	6	2	8	3	20	9
Percentage	0	0	3.8	3.8	1.9	11.3	3.8	15.1	5.7	37.8	17.0

TABLE B-20. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO START COMPANY LEVEL TRAINING

Question 17: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **start** a company/team actual training exercise in order to conduct **acceptable** training?

M1 and M2/M3	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=41	0	0	1	1	3	7	7	4	1	16	1
Sqd Ldr N=8	0	0	0	0	0	1	0	1	0	4	2
Plt Sgt N=22	0	0	0	0	0	1	3	1	2	12	3
Plt Ldr N=22	0	0	0	0	0	2	4	5	1	7	3
CoCdr/XO N=15	0	0	0	1	0	1	1	3	1	5	3
Number N=108	0	0	1	2	3	12	15	14	5	44	12
Percentage	0	0	.9	1.9	2.8	11.1	13.9	13.0	4.6	40.7	11.1
M1 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=23	0	0	0	0	1	5	7	2	0	8	0
Plt Sgt N=12	0	0	0	0	0	0	2	0	0	9	1
Plt Ldr N=12	0	0	0	0	0	1	4	3	1	3	0
CoCdr/XO N=8	0	0	0	0	0	0	0	2	0	4	2
Number N=55	0	0	0	0	1	6	13	7	1	24	3
Percentage	0	0	0	0	1.8	10.9	23.6	12.7	1.8	43.6	5.5
M2/M3 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=18	0	0	1	1	2	2	0	2	1	8	1
Sqd Ldr N=8	0	0	0	0	0	1	0	1	0	4	2
Plt Sgt N=10	0	0	0	0	0	1	1	1	2	3	2
Plt Ldr N=10	0	0	0	0	0	1	0	2	0	4	3
CoCdr/XO N=7	0	0	0	1	0	1	1	1	1	1	1
Number N=53	0	0	1	2	2	6	2	7	4	20	9
Percentage	0	0	1.9	3.8	3.8	11.3	3.8	13.2	7.6	37.7	17.0

TABLE B-21. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO CONTINUE COMPANY LEVEL TRAINING

Question 18: As a leader, what do you consider the **minimum** number of **operational** manned modules (simulators) that would be required to **continue** a company/team exercise in order to conduct **acceptable** training?											
M1 and M2/M3	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=41	0	0	2	3	3	6	7	4	0	16	0
Sqd Ldr N=8	0	1	1	0	0	1	0	0	0	3	2
Plt Sgt N=22	0	0	0	1	1	0	4	1	2	10	3
Plt Ldr N=22	0	0	0	0	0	4	5	3	1	6	3
CoCdr/XO N=15	0	0	2	1	1	1	3	1	1	2	3
Number N=108	0	1	5	5	5	12	19	9	4	37	11
Percentage	0	.9	4.6	4.6	4.6	11.1	17.6	8.3	3.7	34.3	10.2
M1 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=23	0	0	0	1	2	3	7	2	0	8	0
Plt Sgt N=12	0	0	0	0	1	0	3	0	0	7	1
Plt Ldr N=12	0	0	0	0	0	2	5	1	1	3	0
CoCdr/XO N=8	0	0	0	0	1	1	2	0	1	1	2
Number N=55	0	0	0	1	4	6	17	3	2	19	3
Percentage	0	0	0	1.8	7.3	10.2	30.9	5.5	3.6	34.6	5.5
M2/M3 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=18	0	0	2	2	1	3	0	2	0	8	0
Sqd Ldr N=8	0	1	1	0	0	1	0	0	0	3	2
Plt Sgt N=10	0	0	0	1	0	0	1	1	2	3	2
Plt Ldr N=10	0	0	0	0	0	2	0	2	0	3	3
CoCdr/XO N=7	0	0	2	1	0	0	1	1	0	1	1
Number N=53	0	1	5	4	1	6	2	6	2	18	8
Percentage	0	1.9	9.4	7.6	1.9	11.3	3.8	11.3	3.8	34.0	15.1

TABLE B-22. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO CONTINUE COMPANY LEVEL TRAINING

Question 19: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **continue** a company/team actual training exercise in order to conduct **acceptable** training?											
M1 and M2/M3	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=41	0	0	1	3	5	4	7	3	1	15	2
Sqd Ldr N=8	0	1	0	0	0	1	0	0	0	3	3
Plt Sgt N=22	0	0	0	0	1	1	4	1	2	10	3
Plt Ldr N=22	0	0	0	0	0	5	6	3	1	4	3
Co Cdr/XO N=15	0	0	1	1	1	1	3	1	1	2	4
Number N=108	0	1	2	4	7	12	20	8	5	34	15
Percentage	0	.9	1.9	3.7	6.5	11.1	18.5	7.4	4.6	31.5	13.9
M1 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=23	0	0	0	1	3	2	7	2	0	8	0
Plt Sgt N=12	0	0	0	0	1	0	3	0	0	7	1
Plt Ldr N=12	0	0	0	0	0	3	6	1	1	1	0
Co Cdr/XO N=8	0	0	0	0	1	1	2	0	1	1	2
Number N=55	0	0	0	1	5	6	18	3	2	17	3
Percentage	0	0	0	1.8	9.1	10.9	32.7	5.5	3.6	30.9	5.5
M2/M3 only	**Number of manned modules**										
Duty Position	**1**	**2-4**	**5-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**>14**
TC/BC N=18	0	0	1	2	2	2	0	1	1	7	2
Sqd Ldr N=8	0	1	0	0	0	1	0	0	0	3	3
Plt Sgt N=10	0	0	0	0	0	1	1	1	2	3	2
Plt Ldr N=10	0	0	0	0	0	2	0	2	0	3	3
Co Cdr/XO N=7	0	0	1	1	0	0	1	1	0	1	2
Number N=53	0	1	2	3	2	6	2	5	3	17	12
Percentage	0	1.9	3.8	5.7	3.8	11.3	3.8	9.4	5.7	32.1	22.6

TABLE B-23. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO START TASK FORCE LEVEL TRAINING

Question 20: As a leader, what do you consider the **minimum** number of **operational simulators** that would be required to **start** a task force training exercise in order to conduct **acceptable** training?

M1 and M2/M3	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=18	1	0	0	0	0	4	1	1	3	0	0	8
Sqd Ldr N=4	0	0	0	0	0	0	0	0	2	0	0	2
Plt Sgt N=11	1	1	0	0	0	1	1	1	2	0	0	4
Plt Ldr N=11	0	1	0	0	0	2	0	0	2	0	0	6
Co Cdr/XO N=70	0	0	0	0	0	0	0	3	3	0	0	1
Number N=51	2	2	0	0	0	7	2	5	12	0	0	21
Percentage	3.9	3.9	0	0	0	13.7	3.9	9.8	23.5	0	0	41.2
M1 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=11	1	0	0	0	0	4	1	0	3	0	0	2
Plt Sgt N=6	0	1	0	0	0	1	0	1	1	0	0	2
Plt Ldr N=6	0	0	0	0	0	2	0	0	1	0	0	3
Co Cdr/XO N4=	0	0	0	0	0	0	0	1	3	0	0	0
Number N=27	1	1	0	0	0	7	1	2	8	0	0	7
Percentage	3.7	3.7	0	0	0	25.9	3.7	7.4	29.6	0	0	25.9
M2/M3 only	**Number of manned modules**											
Respondent Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=7	0	0	0	0	0	0	0	1	0	0	0	6
Sqd Ldr N4=	0	0	0	0	0	0	0	0	2	0	0	2
Plt Sgt N=5	1	0	0	0	0	0	1	0	1	0	0	2
Plt Ldr N=5	0	0	0	0	0	0	0	0	1	0	0	3
Co Cdr/XO N=3	0	0	0	0	0	0	0	2	0	0	0	1
Number N=24	1	1	0	0	0	0	1	3	4	0	0	14
Percentage	4.2	4.2	0	0	0	0	4.2	12.5	16.7	0	0	58.3

TABLE B-24. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO START TASK FORCE LEVEL TRAINING

Question 21: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **start** a task force actual training exercise in order to conduct **acceptable** training?

M1 and M2/M3	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=18	1	0	0	0	0	4	1	1	3	0	0	8
Sqd Ldr N=4	0	0	0	0	0	0	0	0	2	0	0	2
Plt Sgt N=11	0	2	0	0	0	1	1	1	2	0	0	4
Plt Ldr N=11	0	1	0	0	0	2	0	0	2	0	0	6
Co Cdr/XO N=6	0	0	0	0	0	0	0	3	1	0	0	2
Number N=50	1	3	0	0	0	7	2	5	10	0	0	22
Percentage	2.0	6.0	0	0	0	14.0	4.0	10.0	20.0	0	0	44.0
M1 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=11	1	0	0	0	0	4	1	0	3	0	0	2
Plt Sgt N=6	0	1	0	0	0	1	0	1	1	0	0	2
Plt Ldr N=6	0	0	0	0	0	2	0	0	1	0	0	3
Co Cdr/XO N=4	0	0	0	0	0	0	0	2	1	0	0	1
Number N=27	1	1	0	0	0	7	1	3	6	0	0	8
Percentage	3.7	3.7	0	0	0	25.93	3.7	11.1	22.2	0	0	29.6
M2/M3 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**2 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=7	0	0	0	0	0	0	0	1	0	0	0	6
Sqd Ldr N=4	0	0	0	0	0	0	0	0	2	0	0	2
Plt Sgt N=5	0	1	0	0	0	0	1	0	1	0	0	2
Plt Ldr N=5	0	1	0	0	0	0	0	0	1	0	0	3
Co Cdr/XO N=2	0	0	0	0	0	0	0	1	0	0	0	1
Number N=23	0	2	0	0	0	0	1	2	4	0	0	14
Percentage	0	8.7	0	0	0	0	4.4	8.7	17.4	0	0	60.9

TABLE B-25. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED SIMULATORS REQUIRED TO CONTINUE TASK FORCE LEVEL TRAINING

Question 22: As a leader, what do you consider the **minimum** number of **operational simulators** that would be required to **continue** a task force exercise in order to conduct **acceptable** training?

M1 and M2/M3	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=18	1	0	1	1	0	3	1	1	3	0	0	7
Sqd Ldr N=4	0	0	0	0	0	0	0	0	3	0	0	1
Plt Sgt N=11	0	2	0	0	0	1	2	0	2	0	0	4
Plt Ldr N=11	0	1	0	0	0	3	0	0	1	0	0	6
Co Cdr/XO N=6	0	1	0	0	0	2	1	0	0	0	1	1
Number N=50	1	4	1	1	0	9	4	1	9	0	1	19
Percentage	2.0	8.0	2.0	2.0	0	18.0	8.0	2.0	18.0	0	2.0	38.0
M1 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=11	1	0	0	1	0	3	1	0	3	0	0	2
Plt Sgt N=6	0	1	0	0	0	1	1	0	1	0	0	2
Plt Ldr N=6	0	0	0	0	0	2	0	0	1	0	0	3
Co Cdr/XO N=4	0	0	0	0	0	2	1	0	0	0	1	0
Number N=27	1	1	0	1	0	8	3	0	5	0	1	7
Percentage	3.7	3.7	0	3.7	0	29.6	11.1	0	18.5	0	3.7	25.9
M2/M3 Only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=7	0	0	1	0	0	0	0	1	0	0	0	5
Sqd Ldr N=4	0	0	0	0	0	0	0	0	3	0	0	1
Plt Sgt N=5	1	0	0	0	0	0	1	0	1	0	0	2
Plt Ldr N=5	0	1	0	0	0	1	0	0	0	0	0	3
Co Cdr/XO N=2	0	1	0	0	0	0	0	0	0	0	0	1
Number N=23	1	2	1	0	0	1	1	1	4	0	0	12
Percentage	4.4	8.7	4.4	0	0	4.4	4.4	4.4	17.4	0	0	52.2

TABLE B-26. UNIT LEADER RESPONSES REGARDING NUMBER OF MANNED VEHICLES REQUIRED TO CONTINUE TASK FORCE LEVEL TRAINING

Question 23: As a leader, what do you consider the **minimum** number of **operational vehicles** that would be required to **continue** a task force actual training exercise in order to conduct **acceptable** training?

M1 and M2/M3	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=18	1	0	2	0	0	3	1	1	3	0	0	7
Sqd Ldr N=4	0	0	0	0	0	0	0	0	3	0	0	1
Plt Sgt N=11	1	1	0	0	0	1	2	0	2	0	0	4
Plt Ldr N=11	0	1	0	0	0	2	0	1	1	0	0	6
Co Cdr/XO N=6	0	1	0	0	0	1	1	0	0	0	1	2
Number N=50	2	3	2	0	0	7	4	2	9	0	1	20
Percentage	4.0	6.0	4.0	0	0	14.0	8.0	4.0	18.0	0	2.0	40.0
M1 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=11	1	0	1	0	0	3	1	0	3	0	0	2
Plt Sgt N=6	0	1	0	0	0	1	1	0	1	0	0	2
Plt Ldr N=6	0	0	0	0	0	1	0	1	1	0	0	3
Co Cdr/XO N=4	0	0	0	0	0	1	1	0	0	0	1	1
Number N=27	1	1	1	0	0	6	3	1	5	0	1	8
Percentage	3.7	3.7	3.7	0	0	22.2	11.1	3.7	18.5	0	3.7	29.6
M2/M3 only	**Number of manned modules**											
Duty Position	**14 to 15**	**16 to 17**	**18 to 19**	**20 to 21**	**22 to 23**	**24 to 25**	**26 to 27**	**28 to 29**	**30 to 31**	**32 t0 33**	**34**	**>34**
TC/BC N=7	0	0	1	0	0	0	0	1	0	0	0	5
Sqd Ldr N=4	0	0	0	0	0	0	0	0	3	0	0	1
Plt Sgt N=5	1	0	0	0	0	0	1	0	1	0	0	2
Plt Ldr N=5	0	1	0	0	0	1	0	0	0	0	0	3
Co Cdr/XO N=2	0	1	0	0	0	0	0	0	0	0	0	1
Number N=23	1	2	1	0	0	1	1	1	4	0	0	12
Percentage	4.4	8.7	4.4	0	0	4.4	4.4	4.4	17.4	0	0	52.2

B.6 Training Interruption Impact on Performance. Training interruptions had a minimal impact on the performance of individual and collective tasks, individual and crew morale and attitude, and the overall accomplishment of training objectives. Ratings for each of these areas detailing duty positions of individuals providing the ratings by duty position are provided in Table B-27.

TABLE B-27. UNIT LEADER RATINGS ON THE IMPACT OF TRAINING INTERRUPTIONS

Question 24: Rate the impact that interruptions to training had on the following areas: (rating scale: 1 = unacceptable impact → 10 = no impact at all)

M1 and M2/M3 Leaders	Responses by duty position (mean)							
Data Point	**CO CDR and XO N=15**	**PLT LDR N=22**	**PLT SGT N=23**	**SQD LDR N=9**	**VEH CDR N=43**	**OC N=16**	**OTHER N=13**	**MEAN N=141**
Performance of individual tasks	7.6	8.2	8.9	7.7	8.3	8.6	6.7	8.0
Performance of collective tasks	7.4	7.4	8.4	7.0	8.3	8.5	7.3	7.8
Individual morale	7.6	7.0	9.0	7.6	8.0	9.1	7.5	8.0
Individual attitude	7.5	7.3	9.2	7.4	8.2	9.0	7.2	8.0
Crew morale	7.6	7.5	9.3	7.7	8.0	9.1	6.8	8.0
Crew attitude	7.5	7.5	8.8	7.4	8.1	9.1	6.8	7.9
Accomplishing training objectives	7.5	8.0	9.4	6.8	8.4	9.1	7.3	8.1

M1 only Leaders	Responses by duty position (mean)					
Data Point	**CO CDR and XO N=8**	**PLT LDR N=12**	**PLT SGT N=12**	**SQD LDR N=0**	**VEH CDR N=24**	**MEAN N=56**
Performance of individual tasks	7.8	8.8	8.8	N/A	8.1	8.4
Performance of collective tasks	7.8	8.2	8.9	N/A	8.0	8.2
Individual morale	7.9	8.6	9.0	N/A	7.3	8.2
Individual attitude	7.8	8.6	9.3	N/A	7.5	8.3
Crew morale	7.1	8.4	9.2	N/A	7.2	8.0
Crew attitude	7.1	8.3	9.1	N/A	7.3	7.9
Accomplishing training objectives	7.6	8.5	9.8	N/A	8.5	8.6

M2/M3 only Leaders	Responses by duty position (mean)					
Data Point	**CO CDR and XO N=7**	**PLT LDR N=10**	**PLT SGT N=11**	**SQD LDR N=9**	**VEH CDR N=19**	**MEAN N=56**
Performance of individual tasks	7.4	7.6	8.9	7.7	8.5	8.0
Performance of collective tasks	7.0	6.7	7.9	7.0	8.6	7.4
Individual morale	7.3	5.5	9.1	7.6	8.6	7.6
Individual attitude	7.3	6.0	9.1	7.4	8.9	7.7
Crew morale	8.0	6.6	9.4	7.7	8.8	8.1
Crew attitude	7.9	6.8	8.5	7.4	8.8	7.9
Accomplishing training objectives	7.3	7.4	9.0	6.8	8.4	7.8

APPENDIX C
INTEGRATED LOGICS SUPPORT

Is the CCTT logistically supportable in the field? The CCTT logistic supportability was assessed from review and analysis of the FOTE 1b results, as well as, an assessment of the logistic planning information for the system. During the previous IOTE, test equipment and parts on the System Support Package Component List (SSPCL) were not available at the test site. Repair parts were removed from good modules in order to fix or test down modules or check spare part status. Since repair parts were removed from one module to another module (cannibalization), modules were considered not operational or in a degraded state. Cannibalization was considered a critical factor during the IOTE, which caused the MOE 2-2-3 (old Criteria 2.2) "to not be met." (This criteria states that the system will demonstrate a 90 percent probability that no more than 10 percent of each type of manned module at a given site are simultaneously down for more than 30 minutes during a normal training day.) During the FOTE 1b, the System Support Package was available, and no cannibalization was reported. This measure is considered met.

During IOTE, the contractor provided a list of spares that were needed during the test but which were not received. The contractor/subcontractor also ordered parts but the parts did not arrive in time to repair the modules. During the FOTE 1b, all stock was inventoried prior to the start of test. Ninety-nine percent of the parts used were filled from on site stock. One part, a Plastic Gear Spur, was brought in from an outside source to support the test. Based on the improved results of the FOTE 1b, the system has now demonstrated the ability to be supported in the field.

Additionally during the previous IOTE, the lack of updated manuals could have affected training of the maintainers. It was stated after the IOTE that a training program needed to be implemented so that the maintainers could be trained with updated materiel. Although it is unknown whether the manuals have been updated, survey of the CLS maintenance personnel indicated no significant issues with the manuals during the FOTE. As such, the manuals utilized during the FOTE 1b are now considered adequate for field use.

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ACRONYMS AND ABBREVIATIONS

AAR	After Action Review
ACAT	Acquisition Category
AEC	Army Evaluation Center
A_s	Simulator Availability
ASARC	Army Systems Acquisition Review Council
AST	ATEC System Team
ATEC	Army Test and Evaluation Command
AVG	Average
BLUFOR	Blue Forces
CCED	Close Combat Evaluation Directorate
CCTD	Close Combat Test Directorate
CCTT	Close Combat Tactical Trainer
CLS	Contractor Logistics Support
COIC	Critical Operational Issue and Criteria
COI	Critical Operational Issue
DAG	Data Authentication Group
DAR	Data Analysis and Reporting
DE	Dependent Event
DI	Dismounted Infantry
DIM	Dismounted Infantry Module
DOT	Directorate of Training
DOTE	Director Operational Test and Evaluation
DT	Down Time
EDUCATT	Education through Computer Assisted Training Technology
EFF	Essential Function Failure
FAMEX	Familiarization Exercise
FD/SC	Failure Definition/Scoring Criteria
FIST-V	Fire Support Team Vehicle
FORSCOM	Forces Command
FOTE	Follow-on Operational Test and Evaluation
HMMWV	High Mobility Multipurpose Wheeled Vehicle
IAW	In Accordance With
IG	Image Generator
ILS	Integrated Logistics Support
IOTE	Initial Operational Test and Evaluation
LAN	Local Area Network

LCL	Lower Confidence Level
LUT	Limited User Test
M1A1	M1A1 Tank
M1A2	M1A2 Tank
M2/M3	Bradley Fighting Vehicle (Mech Inf / Cav)
M113	Armored Personnel Carrier
MC	Maintenance Console
MCC	Master Control Console
MOE	Measure of Effectiveness
MOP	Measure of Performance
MTBEFF	Mean Time Between Essential Function Failure
MTBSA	Mean Time Between System Abort
MTT	Mean Turnaround Time
MTTR	Mean Time to Repair
N	Number
NEFF	Non-Essential Function Failure
NFE	Non Failure Event
NFU	Non-Failure event - Unscheduled
OMS/MP	Operational Mode Summary/Mission Profile
OPFOR	Opposing Forces
ORSA	Operations Research Systems Analyst
OTC	Operational Test Command
OTRR	Operational Test Readiness Review
P1	Primary 1-Temperate database
P2	Primary 2-NTC database
PIE	Programmable Interface Electronics
PM	Program Manager
PT	Point
PVT	Production Verification Test
RAM	Reliability, Availability and Maintainability
SA	System Abort/System Assessment
SA-E	Exercise System Abort
SA-F	Facility System Abort
SAF	Semi-Automated Forces
SAFOR	Semi-Automated Forces
SSPCL	System Support Package Component List
STRUCCTT	Structured Training for Units in the Close Combat Tactical Trainer

TDNS	Training Device Needs Statement
TDR	Training Device Requirement, or Test Data Report
TEMP	Test and Evaluation Master Plan
TRADOC	Training and Doctrine Command
TSM	TRADOC Systems Manager
TT	Total Time
VV&A	Verification, Validation and Accreditation

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